SOME NEW BOOKS.

Samuel F. B. Morse.

Few men of equal achievement in American life have come so near to escaping altogether the clutches of the biographer as he whose name is associated in the public mind with the invention of the telegraph. Prime's, the one existing Life, is now supplemented, perhaps superseded, by *Samuel F. B. Morse: His Letters and Journals*, edited by his son, EDWARD LIND MORSE (Houghton Mifflin). The letters collected in these two fat volumes would, even if unsigned, earn attention by sheer intrinsic merit of frank expression by an intelligent person who had common humanity and uncommon experiences. It is somewhat surprising that the man and his works are not more intimately known.

I.

Samuel Finley Breese Morse was born at Charlestown, Mass., April 27, 1791. His father, Jedediah, was a militant clergyman of the Congregational Church, who suffered professionally in the fight for orthodoxy "at a time when Unitarianism was beginning to undermine the foundations of the old austere, childlike faith." He was author of an early American geography and gazetteer, and there are indications in the story that the work was a very respectable financial success. Mrs. Jedediah was Elizabeth Ann Breese. Her son's three chapter name came from her and her grandfather, the Rev. Dr. Samuel Finley, fifth president (1761-66) of the College of New Jersey, now Princeton University. Young Morse, Finley as the family seems always to have called him, went to Phillips Andover Academy and then to Yale. His letters in these years show him to have been a good deal of a boy, with the implication, inevitable in the case of callow 17 or 18, of some priggishness.

In his college days he showed, as the great do often but not always in the years of adolescence, those qualities which were to distinguish his mature career: an attractive manner and a good strong dash of quick temper; fondness for drawing and painting, and interest in science; lack of intellectual concentration, natural concomitant of this diversity of interest, and a certain not displeasing desire for the good things and good times of life, with readiness to pay for them as he went; simply an attractive, clever but rather erratic chap, not more than ordinarily promising, and not at all aloof from his fellows.

The customary period of financial support of a son through the years of his academic education was liberally extended by the elder Morse over the wander years of post-graduate professional training and even the first years of practice. In response to maternal admonition we find him writing, from London, in April, 1815:

> Now as to the young man's living for $300. I know who it is of whom you speak. It is Dr. Parkman, who made it his boast that he would live for that sum; but you did not inquire how he lived. He never refused an invitation to dine, breakfast or tea, which he used to obtain often by pushing himself into everybody's company. • • • If he failed in getting a meal at any of these places he either used to go without, or a bit of bread answered the purpose until the next meal. In his dress he was so shabby and uncouth that any decent person would be ashamed to walk with him in the street. Above all, his notorious meanness in his money matters, his sticking with his poor washerwoman for a halfpenny and with others for a farthing, and his uniform stinginess on all occasions rendered him notoriously disgusting to all his acquaintances and affords, I should imagine, but a poor example for imitation.

With sound sense, he adds that he could live on fifty pounds a year if he had to, or could spend a thousand if he had it, without extravagance, in obtaining greater advantages in his art work. As it was his virtuous endeavor was to accommodate his ends to his actual means. Overlapping the debate in all its perimeter was a fine loyalty and affection. The Puritan New England character of 125 years ago showed its quality nowhere better than in its ability to fight gestfully with its nearest and dearest without rupturing the tender relations cherished in the concealment of its vitals.

While at college Finley Morse did quite a business in miniatures on ivory, at $5 apiece; and when, after his graduation, the elders vetoed his fondest aspiration and decreed a business career, placing him in a bookseller's shop as clerk, he still devoted his hours and days "off" to painting. In 1811 his big chance came, and he took it. From that year to 1815 he studied in London under the able tutelage of Washington Allston. While a student he had displayed marked interest in the study of electricity, then little more than a mere scientific diversion or academic curiosity; and, as he himself long afterward jotted on the margin of one of his early letters, it titillates the appetite for the picturesque coincidental to find him longing for means to flash a certain bit of good news to his friends at home without having to wait upon the slow voyage of a transatlantic mail steamer.

II.

The young art student's life in England in the war years, 1811-15, was one of aesthetic pleasures and also of no little trial to the high spirit of an American in the enemy's country. Benjamin West was dean of the American art colony in the British capital. He was then at the height both of his power and his fame; president of the Royal Academy, in high favor with the King, whose portrait he was painting, and enjoying a contemporary repute greater than his posthumous estimation. Well along in his seventies he was energetic and spry as men of half his years. Allston was the amiable and polished gentleman, a "painter of the purest taste." He was a severe but constructive critic of the efforts of his younger countrymen, brusque, but anxious to help. Inspecting a new picture he would say, not "excellent," "well done," "admirable," but: "Very bad, sir; that is not flesh, it is mud, sir—it is painted with brick dust and clay." Then he would prove the justness of his frank comment, suggesting a flesh tint here, a gray tone there, correcting a line or a proportion, analyzing the composition; showing young ambition not only where it erred but how its error was to be made right.

Morse was something the critic himself; a Lessing for comparative theories of the arts. Let him contrast Sir William Beechy and West:

> You may be apt to ask, "If Sir William is so great and even the best, what is Mr. West's great excellence?" Mr. West is a bad courist in general, but he excels in the grandeur of his thought. Mr. West is to painting what Milton is to poetry, and Sir William Beechy to Mr. West as Pope to Milton; so that comparing, or rather illustrating the one not to the other, I can give you a better idea of the art of painting than in any other way.
>
> For as some poets excel in the different species of poetry and stand at the head of their different kinds, in the same manner do painters have their particular branch of their art, and as epic poetry excels all other kinds of poetry, because it addresses itself to the sublimer feelings of our nature, so does historical painting stand preeminent in our art, because it calls forth the same feelings.

It was a revelation to the boy painter to note the favored status of his art in the old country in comparison with the general indifference to it at home. In America it seemed to "lie neglected," thought of as the employment of persons fitted for no better calling. In England it was a constant subject of conversation (patter) in polite circles, exhibitions were places of fashionable resort, and some knowledge of the arts was deemed a necessity of an accomplished education. Even ladies of rank did not disdain to be seen in public at the galleries, daintily copying the pictures.

Morse's drawing from the Laokoön statue won for him a year's admittance into the Academy. In 1812 he modelled in clay a "Dying Hercules," which West and Allston highly praised, and which he then proceeded to paint on a canvas eight feet by six feet six inches. The picture was shown at the Royal Academy exhibition at Somerset House, May, 1813, and was highly praised. Of nearly 2,000 paintings shown, one London critic placed Morse's among the first twelve. The sculpture captured the gold medal at the Adelphi.

Portrait painting was irksome; the flame of ambition found scant fuel in that commercial atmosphere. Morse longed for "the higher branches" of his art, landscape and historical composition. Resenting the calumny spread against his country that she had produced no men of genius, he burned with indignation and the desire to "show" the calumniators. Though he had reported glowingly the triumphs of his compatriots, he yearned for still greater recognition of America's power in the pursuit of culture. Scorn gave his sensitive, eager spirit "tenfold energy" in his studies: "I should like to be the greatest painter, purely out of revenge!" His heart was in Paris, though his pocketbook and the dictation of his too careful parents kept his body in England, consumed with "ambition to be among those who shall revive the splendor of the fifteenth century; to rival the genius of a Raphael, a Michelangelo, a Titian; to be enlisted in the constellation of genius now rising in this country; to shine, not by a light borrowed from them, but to shine the brightest." How charming the audacity of youth before the reserves, the doubts, the discouragements of life's endless battle clip its spreading pinions. He painted a "Judgment of Jupiter," and returned to his native land in 1815.

He toured New Hampshire paintfully; made many portraits and had some difficulty in collecting his fees; got married; with his brother, invented a "flexible piston pump" for fire engine use, which his waggish brother proposed calling "Morse's Patent Metallic Double Headed Ocean Drinker and Deluge Spouter Valve Pump Boxes"; painted at Charleston, S. C.; became a father; painted the President; helped start a short lived academy of art at Charleston, and longed for one at New Haven, so that he might be nearer home; painted the House of Representatives; invented a marble cutter; got an appointment as attache to a Mexican legation whose exodus was indefinitely postponed; besieged New York, captured Lafayette and other notables on his canvas; lost his wife; helped (1825) found the National Academy of Design, of which he was elected president and reelected every year until 1845; lectured on art, was appointed "professor of the literature of the arts of design" in the University of the City of New York, travelled abroad, and was popular and prosperous.

His part in the establishment of the Academy was the fulfilment of an old dream. In 1814 he wrote from London, with Allston's success in England to inspire his reflections:

> It is really a pleasant consideration that the palm of painting still rests with America, and is in all probability destined to remain with us. All we wish is a taste in the country and a little more wealth. In order to create a taste, however, pictures, first rate pictures, must be introduced into the country, for taste is only acquired by a close study of the merits of the old masters. In Philadelphia I am happy to find they have successfully begun. I wish Americans would unite in the thing, throw aside local prejudices and give their support to one institution. Let it be in Philadelphia, since it is so happily begun there, and let every American feel a pride in supporting that institution; let it be a national, not a city institution. Then might the arts be so encouraged that Americans might remain at home and not, as at present, be under the painful necessity of exiling themselves from their country and their friends.

Mr. Prime quotes and Edward Morse requotes Daniel Huntington's estimate of Samuel F. B. Morse as artist: "He had an honest, solid, vigorous impasto • • • modified in his practice by his studies under West and by his intimacy with Allston, for whose genius he had a great reverence and by whose way of painting he was strongly influenced. He was a lover of simple, unaffected truth, and this trait is shown in his works as an artist. He had a passion for color, and rich, harmonious tints run through his pictures, which are glowing and mellow, yet pearly and delicate. He had a true painter's eye, but he was hindered from reaching the fame his genius promised as a painter by various distractions, such as the early battles of the Academy of Design in its struggles for life, domestic afflictions and, more than all, the engrossing cares of his invention. • • • He deserves an honored place among the foremost American artists." Samuel Isham in his "History of American Painting" laments the loss of Morse from art to science: Not a genius, he was peculiarly qualified to depict the America of 1830 to 1860. His work was uneven in merit, but his pictures were tastefully composed and executed with the livelier rather than the rigid conventional qualities of the art.

III.

The dullest American who happened to be living in England just one hundred years ago, if not completely illiterate, could not have written letters home without getting into them an abundance of matter picturesquely interesting to Americans of this day; and if Morse had been the dullest of those exiles they would have been a remarkably intelligent and alert concourse of men. He had an eager vision, appreciative sense and an eager, eloquent pen. Moreover, he had extraordinary opportunities for to see and to admire the best that England had to show. There is no lack of good anecdotes in his correspondence.

Being one day afflicted with colic, he made use of his letter of introduction to Dr. Lettsom, a "moderate Quaker" and something of a "character." His grammar was original; his subjects and verbs failed of the conventional agreement in "number," &c.: "I shows," "we goes," and so on. This peculiarity gives point to Sheridan's verse:

> If patients call, both one and all
> I bleeds 'em and I sweats 'em.
> And if they die, why, what care I—
> I. Lettsom.

Another time Morse went with Allston, who was ailing, to consult with the famous Dr. Abernethy. They were met at the door by one, "coarse looking, with a shaggy head of hair," whom they took for a domestic.

> Allston—Is Mr. Abernethy in?
>
> The Person—What do you want of him?
>
> Allston—I wished to see him. Is he at home?
>
> The Person—Coom in, mon; coom in.
>
> Allston—But he may be engaged. Perhaps I had better call another time.
>
> The Person (pulling the caller through the door)—Now tell me what is your business with Mr. Abernethy. I am Mr. Abernethy.
>
> Allston—I have come to consult you about an affection——
>
> Abernethy—What the de'il hae I to do with your affections?
>
> Allston—Perhaps, Mr. Abernethy, you are engaged at present, and I had better call again.
>
> Abernethy—De'il the bit, de'il the bit, mon!

Then, conducting them into his office, he made the required examination with a gentleness rivalling Allston's own. "Mr." Abernethy and "Dr." Abernethy were two quite different persons.

Morse and a greater Samuel, Coleridge, had sat up till midnight with Allston, who was ill. Morse was reading Irving's "Knickerbocker." Coleridge borrowed it and sat up to read. When the American got up in the morning he found Coleridge in the sitting room, shades down and lights burning, intent on the book. "Have you been reading all night?" "Why," said Coleridge, "it is not late." Morse threw open the blinds and the 10 o'clock sunlight streamed in. "Indeed," said the Englishman, "I had no conception of this. But the work has pleased me exceedingly; pray, who is the author?" Thus was the way paved for a well known international literary friendship.

But it is perhaps not these records that constitute the most estimable element in the first volume of Morse. The distinctive claim, next after the artist's personal record in his profession, may well rest upon his reflection of the war politics of the day: The aggressive spirit of Young America. The English people in general are (1811) "as much opposed to war as the better part of the American people." In March, 1812, the elder Morse at home writes: "I have no belief that our war hawks will be able to involve the country in a war with Great Britain. • • • It is thought that all the war talk and preparations are intended to effect the re-election of Mr. Madison." At the same time the son was reporting that party debates in England were much less virulent than those on the other side of the Atlantic, and that "some of the best politicians" in England foresaw ruinous effects of the Orders in Council directed against Napoleon but including American commerce in their baleful scope, and believed that "should the United States either persist in non-intercourse or declare war England would be reduced to the lowest extremity."

Originally prejudiced against the policy of non-intercourse, he had, by April, 1812, been converted to a belief in its justness as a retaliatory measure. He was an eye witness of its effects, which he may possibly have exaggerated a little in his description of them as seriously threatening rebellion. He hoped it would be rigorously enforced: "Some of you at home, I suppose, will call me a Democrat. • • • A man to judge properly of his country must view it at a distance.' The Administration besought the English people for support. "America would be compelled to submit, she was not able to go to war." The hot headed New Englander believed, tit for tat that "should America but declare war, before hostilities commenced Great Britain would sue for peace on any terms." The Ministry's best support, he thought, was the violence of the Federalist press. "Their proceedings are copied into the English papers, read before Parliament and circulated through the country"—and Englishmen call them "cowards, a base set." His blood boils as he hears his countrymen called "descendants of convicts, pusillanimous," and so on. Finally, "The only way to please John Bull is to give him a good beating, and such is the singularity of his character that the more you beat him the greater is his respect for you and the more he will esteem you."

He reports Mr. Moulton, M. P., as telling him personally that the Orders in Council were framed with a view to a British "universal monopoly of commerce"; that such an aim had long been cherished, and the Napoleonic policy afforded a perfect opening for the campaign. America should have considered the circumstances, that Great Britain was fighting "for the liberties of the world," and America should be willing to put up with some inconvenience to effect this gloriously altruistic undertaking! But, standing stoutly by his guns, the young American replied that the "universal monopoly" watchword damned the whole case. Morse's correspondence in this matter deserves a jotting in the history student's notebook.

IV.

Such an invention as the electric telegraph cannot be injected into the routine of life without some disturbance of the social equilibrium. The modern telegraph revolutionized the means of communication, gave a certain "new freedom" from the restrictive harshness of time and space. It endowed business with new powers; it added a weapon to the armory of crime and changed the aspect of military science, and it posed weighty questions of the relations between private enterprise and government operation of public utilities. Although these aspects of its significance were not immediately perceived, were in fact so slow in permeating the collective consciousness that the commercial promoters were in despair of ever seeing their dreams realized, when the inertia of the mass had once been overcome it gathered momentum with great rapidity, and a horde of claimants to recognition for public benefaction arose, by whom and on behalf of him by others with motives more or less disinterested but quite uniformly troublesome a very lively paper warfare was waged. Of American rivals C. T. Jackson, the first, was easily disposed of; he stood on the shifting sands of vanity and envy, and by the catholic multiplicity of his claims in this and other inventions demonstrated a mental perversity that undermined him utterly. Vail's interest was purely that of the commercial promoter, involving the contribution, customary with men of business acumen anxious to see their money coming home carrying more money on its back, of useful, practical suggestions—such, thank Morse's other "line" for the illustration, as an artist picks up where he can and avails himself of without a scratch on his artistic conscience, and quite properly without thought of acknowledgment; such as would play hob with newspaper print if a compulsory signature law were enacted. Prof. Gale made a more technical contribution, based on his chemical knowledge of the nature and operation of various forms of cell and battery; but he stood stoutly by Morse, with never a thought of recognition for himself. The big fight was with Prof. Joseph Henry, a most regrettable affair, in which partisans disgraced their principals and involved these two big men in a dispute unworthy the powers and position of each.

The story of Morse's inspiration and his struggle to "make it good" is pretty well known, and we do not see that the inventor's son revises it vitally, except in one respect, that of the telegraphic alphabet. Here Vail was said to have made a definite technical contribution; but it appears to be finally established that the change from the early code book, based upon a numbered dictionary, to the system of dots and dashes representing letters was but a return to the very first conception which Morse had jotted in his note book in 1832. He seems to have antedated others in the extremely useful device of the "relay." The editor does, very fairly, say that an electric telegraph would have been invented surely, even if Morse had never had a thought of it; also that he might have perfected his invention without suggestions, advice or practical assistance from others. More significantly (and creditably) still: "It seems but simple justice to admit that the wonderful discoveries of Henry were essential to the successful working over long distance of Morse's discoveries and inventions. • • • But it is also just to place emphasis on the fact that Henry's experiments were purely scientific. • • • They led up to the telegraph; they were not a practical telegraph in themselves." But at least as early as 1835 Prof. Henry was using a short telegraph line from his college laboratory to his home across the Princeton campus; the aerial wires were a marvel to the undergraduates of that time. (It is said to have been the first line with a galvanic circuit completed through the earth.) And it was precisely in the "practical" as opposed to the theoretical, experimental field that Henry's successes with the projectile (as opposed to the heating) powers of coils, and with magnets in the wrapping of which Morse was away off the track, that Henry's scientific discoveries were useful to the inventor. Even more striking than the complementary relation between the activities of Morse and those of Henry was the startling parallelism (wholly independent) of Henry's work and that of his great English contemporary Faraday.

It is regrettable that precisely this part of Morse's career, where documents are most to be desired, is its least documented part; he kept no regular diary, his wife and parents, to whom he wrote so constantly and fully in earlier life, were dead, and his brothers were in such intimate and direct contact with him in these later years that he had no occasion to write to them. But there are letters to friends, notably Fenimore Cooper, that record eloquently the personal struggles and trials, ambitions, hopes and despairs of the years when he was battling to get his invention settled "on the market," troubles in England, France and Russia as well as at home; with individuals as well as with Governments and patent offices.

Edward L. Morse has done a labor of love; it would perhaps have been a labor more useful to the American public, ever ready, even eager to do justice to its benefactors, if there had been less of love in it. Mr. Morse is finely fair; but an editor with less of personal interest in his subject would not have had to fall back on his fairness, for he would have seen in clearer perspective lines of value the past and happily pretty well forgotten controversy. Aside from that wretched affair, a delightful and valuable volume could be made—ought to be made—of the life of that ripe, scholarly, modest scientist Henry, whose life was devoted to unostentatious service, closing appropriately with his presidency of the Smithsonian Institution. It is said that while teaching at Albany in 1831 (?) Henry operated an electro-magnetic telegraph over a mile of wire line (projectile extension was the great difficulty, and his "intensity" battery presented its first satisfactory solution), "talking" by means of a bell tapped when the armature was attracted by the magnet. This statement was made in 1885 by Edward N. Dickerson, a student under Henry in 1839, and an ardent but discriminating admirer of the professor. The name of Samuel F. B. Morse was one of the first to be "immortalized in bronze in the stately colonnade" of the Hall of Fame, and that of Joseph Henry ought to be held in gratefully affectionate memory by his countrymen.

The Promise of Patagonia.

South of the great estuary of the River Plate there has been little to attract the attention to the temperate regions of South America. Its Atlantic seaboard is uninteresting, monotonous stretches of bluffs forever crumbling under the wash of the waves, harbors few and none commodious, no economic development of the land which might excite the growth of sea ports. No richness of mineral wealth has brought the mad race of miners who might put Patagonia upon the map of the geography of adventure. Even the tales of mission endeavor have been written in such drab and uninteresting ink that no world interest has attached to this land. There is nothing there to attract the hunter of great game save the pursuit of the rhea by the casting of the bolas, and that proves but tame sport and no great enthusiasm can be worked up over the capture of a bird whose only use lies in the manufacture of feather dusters. Cape Horn and the wind swept Straits of Magellan are known only in the record of sea discomfort and marine disaster. Patagonia remains to most folk a mere possession of geographical memory, perhaps recalled as the abode of giants out of the travels of Lemuel Gulliver and now quite disproved.

To such memory as this it comes with no little surprise to find that the thriving Argentine Republic regards this land as an empire in the making, that it has commissioned explorers to examine and to report upon its resources, to devise a comprehensive plan by which its wealth may be made available. Through the comity of a pleasant international courtesy which should be equally recognized by the two nations the Argentine invited the United States to detail one of its best geographers and economic geologists to undertake this exploration. The invitation was extended to BAILEY WILLIS of the United States Geological Survey, the results of his efforts begin to appear in *Northern Patagonia, Character and Resources* (Charles Scribner's Sons), of which the first volume and accompanying atlas of maps have just been printed. The bureau responsible for the work is the Comision de Estudios Hidrologicos, under the Bureau of Railways of the Argentine Ministry of Public Works.

I.

It has long been a common complaint that geographical publication in the United States has been singularly backward in the arts of cartography. There can be no doubt that the complaint is well founded. There are exceptions in official map publication. The charts of the hydrographic department of the navy are unexcelled, but it is to be remembered that the needs of the seaman in his relation to the shore are best served by the accurate presentation of the merest outline bare of all topographic detail beyond the beach. Likewise it is proper to give great praise to the maps of the Geological Survey, particularly to the series of degree square charts which are now being issued for several centres of geographical interest and which in time will become the base maps for all the smaller subdivisions of our area.

But in the wide field of commercial geography American map printing has lagged far behind its great advance in the processes of printing. Our map printers have shown themselves singularly indifferent to the establishment of an accurate survey base; they have altogether neglected to come to an agreement upon the technical symbolism of distinguishing color; there is no uniformity in lettering, and the lines are coarse and frequently either misleading or meaningless. An index of the low stage of development which map printing holds with us may be found in the common railway folders, with their coarseness of design and with the inaccuracy of drawing, which is incorporated in them as an advertising sin. It is only in Great Britain that we can find any such shabby map work for comparison, yet not even in British railway maps can we find three or four which design to set forth the fact that three or four lines of railway may be the shortest distance between two points.

Cartography has been brought to a high pitch on the Continent, in each of the principal countries there are several commercial establishments which have specialized in this work. We may cite the average order of success of the product in an ascending scale from Sweden through France, the Netherlands, Germany, up to Switzerland, where the best work is done. It is accordingly with great delight that we find in the twenty-five maps which accompany this report a great advance in American map production. The individual sheets are not signed, all the more to be regretted since the maps have such high rank, but the author assigns credit to the Topographic Engraving Company of Washington. These maps are printed in black and eight colors, of which six are employed in classification of the nature and economic possibilities of the soil. The water courses and lakes are shown in blue and the contours in brown in accordance with the accepted system of the best geographers. The contour curves are drawn at each hundred meters of elevation and in the mountain regions must be somewhat closely crowded, yet it would greatly facilitate the reading of this very important element if it had seemed advisable to the map maker to distinguish the fifth and tenth curves, for when a single map sheet contains the record of contours from 100 meters to 2,500 it requires close attention to follow the lines. The six classification colors indicate respectively the alpine zone, virgin forest, brushy mountain slopes, recent burns, grassy serranias and agricultural lands. The tints have been intelligently selected from the scheme devised by recent geographical congresses and there are no glaring contrasts, yet perfect definition has been carried throughout the sheets.

II.

Great as is the ambition of the Argentine Republic to take its place at the head of the South American communities it has not allowed itself to be carried into excess in the survey of its Patagonian empire. The work to which Mr. Willis was specifically appointed was the examination of the water possibilities of the territories through which the Government owned railroads of the republic were being pushed. The project owes its inception to the wise statesmanship of Don Ezequiel Ramos-Mexia and has been largely in accordance with his plans through several changes of administration. As the work progressed and its value and equally its needs became apparent the survey underwent limitation and expansion, it was soon seen that the survey along but one of the projected lines of rail would prove a sufficient task for the available force and that its operations should exceed the mere item of hydrology and be extended to include every feature of the terrain which might be found valuable in economic geography.

We have, then, in this work a study of the land which will be opened to settlement by the transcontinental line, which approximates the forty-first parallel from Port San Antonio, on the Atlantic, to Lake Nahuel Huapi in the heart of the Andes, near which point it will connect and interchange traffic with a Chilean line to Valdivia, on the Pacific. A considerable beginning has been made from each sea terminus of this international railway trunk line. The Chilean State railway is already running both north of Valdivia and south as far as Puerto Montt; an eastward extension has advanced upon the Andean slopes and is at present operated as far as Guaignal. The Argentine line is complete from San Antonio to Maquinchao, at a distance of 385 kilometers, and the worst difficulties of construction have been overcome. This line is paralleled two degrees north by a railway from Bahia Blanca already in operation to Neuquen and projected to reach Nahuel Huapi. Another line is projected about two degrees to the south, to run from Puerto Madryn and Rawson to the same western terminus in the Andean National Park. When the San Antonio railway is completed through the Andes it will afford a line operable in all seasons for a distance of 565 miles to the terminus at Valdivia, with a local extension to ship side at Puerto de Corral, projected for the service of this short interoceanic railway. Mr. Willis here reports upon the region cut by the San Antonio line and includes in his economic survey adjacent territory tributary to the Bahia Blanca line to the north and to the Puerto Madryn line to the south. Accordingly he is busy with parts of the Territory of the Rio Negro and of the Territory of Chubut.

We shall have new views of Patagonia to adopt. There seems to be an impression of its bleakness, yet its climate in the region of these surveys is effectively that of North Carolina. We can do no better than read the comparative map wherewith the author has set forth the comparative area and position of the Argentine. Turning it upside down in order to bring its cold south into approximation with our cold north and applying the latitudes of the Argentine to the corresponding north latitudes of our zone we shall find the southern republic to begin upon the map of North America as nearly as may be at Vera Cruz, to follow with its Atlantic coast the valley of the Mississippi as far as the mouth of the Ohio, thence the valley of the Missouri to the Canadian border and to set its Cape Horn about half way between Winnipeg and Hudson Bay. In this apposition the Andean boundary of the Argentine will nearly approximate the eastern face of the Rocky Mountains near Denver and thence past El Paso and down to Vera Cruz. The whole tract under this survey closely corresponds to northern Nebraska and southern Iowa. It is interesting to observe that while this land was formerly included in the Great American Desert which has been obliterated by our great transcontinental railways the progress of this survey for a transcontinental railway system in the Southern Hemisphere has begun to obliterate the opinion, held even in Buenos Ayres, that Patagonia is a desert and worthless land.

Patagonia has been debatable land from the beginning of Spanish settlement, always claimed by the Argentine, a claim always disputed by Chile, yet never with much acrimony of discussion on either side. The uncertainty of boundary led at times to border disputes and in the latter half of the last century Chile began to assert superior claims to the eastern slopes of the Andes. Some difficulty threatened and war between the two countries seemed imminent, but the trouble was for the time composed in 1881 by a treaty, which established the boundary as along the "most elevated crests of the Cordilleras which may divide the waters flowing to the Atlantic and the Pacific." Unfortunately the watershed did not altogether correspond with the crest of the Cordilleras, Chilean waters found their outlet in the Atlantic and Argentine waters fell into the Pacific. Eventually the matter was referred to arbitration and in 1902 King Edward VII. decided the controversy in such wise that it is not likely that dispute can ever arise.

III.

Patagonia in particular faces the problem of water; its condition is superficially much the same as in our arid and semi-arid West. It was in recognition of this similarity of problem that the Government at Buenos Ayres was led to ask the assistance of those in Washington who had been engaged in the study of conservation and water storage. The territory lies wholly within the sweep of the westerly variable winds. The east coast is open to the Atlantic atmosphere, but easterly winds are rare and seldom is rain brought from that source. The westerly winds coming in over the Pacific are sharply elevated to the Andean summits and discharge their moisture on the Chilean slopes; by the time they have crossed to Patagonia they have become dry winds and tend more to evaporate what surface moisture there is rather than to add to its amount. The hope of the future wealth of this territory was seen to lie in the problem of its water supply. Two solutions were apparent in our similar experience in North America, utilization of sub-surface water, impounding of surface streams for the employment of their water supply in places where the value of the water could be most advantageously applied.

The former of these solutions pressed most urgently upon the needs of the beginning railway and was first taken up by Mr. Willis and his assistants. The town of San Antonio was wholly without water save such as might be caught in the rains. This is a condition which occurs in several thriving communities, and life adjusts itself thereto. Bermuda, for a neighboring instance, is wholly dependent on its rain catchment, and no lack is felt in its supply. But Bermuda is in a zone of rains sweeping in from sea, every wind brings its water content and most winds discharge it in abundance. San Antonio, however, rarely gets winds from the ocean, and its steady west winds are bone dry after their passage of the Andes, therefore the rain catchment is precarious and at the time when the railway construction was begun the town supply was insufficient for its needs before the new and great demands were made upon it. The first effort lay in the discovery of an artesian supply. The borings have proved all in vain, it has been found impossible to discover a potable underflow which might be used for the support of the town and for the needs of its railway service. Accordingly the railway was pushed as rapidly as possible, the first goal being Arroyo Valchetta, in order that water might be carried in tank cars for the service of the town. The permanent solution is designed to be a canal from that source of water extending across the high coastal plain to some satisfactory point on the bay to which San Antonio may be moved in order to establish a convenient port.

The soils of the pampas country traversed by the railroad have been exhaustively studied in this exploration. Potentially they are very rich and should yield handsome returns to agriculture under ditch, Mr. Willis observes:

> The soils of Rio Negro are derived in part from igneous rocks which, decaying, yield some of the richest soil elements; from clay rocks originally deposited in swamps, in estuaries or on the sea bottom, and now exposed to disintegration; from sands loosened from sandstones or by the decomposition of granites. In addition to these constituents volcanic ash is an important element which, though not everywhere present, is widespread. The result, whatever the source, is a soil made up of clay and sand, fine or coarse, which in their place of origin occur more or less intimately mixed, but which in the course of transportation by the winds become more or less effectively sorted. The sorted character of eolian soils strongly distinguishes them from the mixed alluvial soils from which they are in many places derived.

The quality of the eolian distribution of soils was first subjected to exhaustive study by the Baron von Richthofen in his examination of the loess in China. The sifting which the dry soil receives from the wind is extremely complete. All rocks too heavy for the wind to move are left behind; each portable element in proportion to its weight is found at varying distances from the site of the original deposit. The chemical value of this wind driven soil becomes more and more concentrated in the lighter element, which may be carried to enormous distances for the enrichment of other lands, as it may be held in the lee of even slight elevations in deposits of great fertility. Such soil may be held against the wind by water and when the ditch is available and crops are set the growth of a fixed humus is immediate and satisfactory.

Accordingly it has been one of the foremost duties of this careful survey to set apart the lands which must for the present remain pastoral and open to lease by the sheep raiser, and those which it will be practicable to bring into cultivation under irrigation. For the pastoral lands the survey has made valuable recommendations looking toward the improvement of the forage by selection of the grasses which will best comport with the climate and soil, by regulation of the number of sheep allowed to pasture on each square league, by discussion of the most satisfactory breed of sheep to raise in any given region. Several considerable areas have been recommended for agricultural exploitation along the line of the railway and experiments of the most hasty description have been conducted at several spots by the railway construction forces. The result has been found to be promising and the more careful method of soil analysis shows that agriculture under ditch is quite feasible and may be expected to add considerably to the resources of the colony.

IV.

Mr. Willis finds the key to the whole situation to lie in the Andes at the western boundary of the pampas land which is to be made available. The region is the source of water supply, it is there at the source that the economy of the water must begin. In a brief note upon the boundary dispute with Chile it has been shown that the watershed does not closely correspond with the height of land. Thus, while the eastern face of the Cordilleras receives far less rain and storage than the aspect toward the Pacific, the Patagonian Andes are well watered because the valleys receive a considerable supply of waters which fall on the western face of the mountains. The snow storage may be subnormal, and for that reason the volume of the streams flowing eastward through the pampas may lack the control which is found of so much value. But the whole eastern valley system of the Cordilleras abounds in lakes which serve as natural storage reservoirs and which may be made the sites of artificial controls of the seasonal water supply after the methods of modern hydrology. These lakes are at present in unorganized territory of the central government and not open to private ownership. There is a strong sentiment in the Argentine to retain these irrigation and power possibilities in public possession and as need arises to deal individually with each project of exploitation which may arise. Already the largest lake, Nahuel Huapi, has been set aside as a national park.

In this cordillera region the future of the development of the pampas articulates with the preservation of the forest. Here the great republic of the south has taken advantage of the fact that the great forest areas yet remain fiscal lands and subject to control of the central Government. Economically these forests, enormous in extent, offer little temptation to the logger by reason of their inaccessibility. There is good timber still standing and it is regarded as a national asset, a source of income whereby to defray the cost of forest maintenance. It is recognized down there that these forests are vital to the wealth of the country lying below them and plans are making for the extension to them of scientific forestry. The Argentine has learned its lesson in the rapid decline of the quebracho industry, owing to the wasteful cutting of primeval forests of that valuable dye wood, and to the same way the indiscriminate gathering of maté has appreciably lessened its source of supply and raised the price of that necessity of South American life. With this lesson well learned the Argentine intends to see that its mountain forests are not destroyed merely for the enrichment of the logger. There is a constant factor of loss through fire for the republic is not yet ready to establish a system of control over the extensive area of the Andes. In this report the fires are charged up to the score of Chileans who cross the border to poach on the preserves of their neighbor, a charge which may contain equal parts of truth and of national jealousy, always strongest on distant and sparsely settled frontiers.

The project of the national park of Nahuel Huapi is a noble social plan. The lake is of the size of Lake Geneva and with the unexpected beauty of Lucerne, for the comparison of an Andean lake must naturally be made with the Alpine lakes of Switzerland. Over the lake towers the peak of El Tronador, which has never yet been scaled and within easy reach in the cordillera are many glaciers and summits which will attract the climber. On the completion of the railway this park will be but two days from Buenos Ayres, and the Government has planned to make it a playground of the people. Certain sites on its shores will be open to lease for the villas of the wealthy; hotels will be conducted by the central authority for the benefit of the tourist; towns will be established on its banks for those who may choose this spot for their permanent abode. When it has served its purpose as a great national playground Nahuel Huapi will be made to pay its way for the general good. One of Mr. Willis's duties was to find the site and to lay out the plot of the great industrial city of Nahuel Huapi, where the water power might be used for manufactures. This is on the Limay River about five miles below the mouth of the lake, at a point where a dam 100 feet high may be created with little difficulty and will yield 80,000 horse-power. From this operative centre the park will be supplied with electricity for every purpose of heating and lighting with a surplus in the industrial city sufficient to provide manufactures sufficient to support a city of 40,000 population.

HANDY QUOTATION MARKS

Protection Against Libel Suit and Excuse for Eccentric Style.

Judge Bodkin's book of reminiscences contains many good things. Among these is his description of one of the judges under whom he served, John B. Gibson, who is said never to have read a novel in his life. It was he, says the Judge, in the *Federal Advertiser*, who revised the court copy and mercilessly mutilated the manuscript.

He had one curious delusion. He objected that inverted commas were an invitation against a libel action, and, although still, an excuse for any eccentricity of style. On one occasion Mr. Bodkin, describing a theatrical performance, said that it was "exquisitely played." "Old G." cocked his head critically on one side. "I don't like that word exquisitely," he said. "All right, sir," I answered, "I'll strike it out."

"No, no; it's a good enough word, but it's a little unusual there. Tell you what, we'll quote it."

"Quote it from what?" I asked in amazement. "Oh, it does not matter; I'll simply quote it." Next morning the *Gentleman's Journal* duly reported that the performance was "exquisitely played."

War Names for Flowers.

Among a fine display of chrysanthemums and begonias at the Horticultural Society's show at Westminster yesterday, says the *Daily News and Leader*, was a chrysanthemum of old gold exhibited by C. J. Ellis of West Mare labelled "King Albert."

At another corner of the hall a red carnation bore the proposition "British Triumph," while Wells & Co.'s new varieties included "General Smith-Dorrien" and "Undaunted," again figured among the exhibits.